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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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01/30/2004

Thomas R. Apel

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8895

7590

10/05/2010

Joseph Pugh  
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EXAMINER

WARREN, MATTHEW E

ART UNIT

PAPER NUMBER

2815

MAIL DATE

DELIVERY MODE

10/05/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/769,571	<b>Applicant(s)</b> APEL ET AL.	
	<b>Examiner</b> MATTHEW E. WARREN	<b>Art Unit</b> 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

This Office Action is in response to the Remarks filed on February 22, 2010.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tserng (US 5,519,358) in view of Chau et al. (US 5,512,496) .

In re claim 1, Tserng shows (figs. 11 or 14) an integrated circuit comprising: a bipolar junction transistor in which a base contact region (122) forms a fishbone configuration having a spine (122) with at least one base finger (124) that extends from one side of the spine and at least one base finger that extends from a second side of the spine, wherein an inner periphery of an emitter region (128) is adjacent to a periphery of said fishbone configuration, and an outer periphery (128) of the emitter region occupies a perimeter of a base region (the base region is not shown but the base fingers are present in the space provide and therefore must be connected to the base region/active region 127 below). Tserng shows all of the elements of the claims except the base region comprising a base mesa region. Tserng discloses the HBT in a top view such that the electrode layout can be shown but does not disclose the specifics of the HBT and it cannot be determined how the base structure is formed. It is well known in

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the art that HBTs may employ base structures in a mesa formation. Chau et al shows (figs. 1-4) several conventional HBTs in which the base (100, 200, etc.) is formed as a mesa. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the HBT of Tserng by forming the base in a mesa configuration because Chau et al teaches that HBT typically comprise mesa structures.

In re claim 2, Tserng shows (figs. 11 or 14) that an emitter contact region has an isomorphic shape with respect to the emitter region and is in direct physical contact with the top surface of the emitter region. The contact has the same rectangular shape as the emitter region portion below it and is therefore isomorphic.

In re claims 3 and 4, Tserng discloses (col. 6, lines 30-50) that the contact regions comprise conductive material such as metal.

In re claims 5, 6, and 12, Chang discloses (col. 8, lines 1-8) that the transistor comprises Si and GaAs and may be a heterojunction bipolar transistor.

In re claim 7, Tserng does not specifically show that the base region contacting tab is embedded within an extension from a spine of the fishbone configuration, but it is well known in the art that contacts made to the base region will extend from a conductive finger.

In re claims 8-11, pertaining to the types of devices that the bipolar transistor is employed in, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex

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Parte Masham, 2 USPQ F. 2d 1647 (1987). Furthermore, amplifiers and cell phones are merely known devices which may employ a bipolar transistor. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the bipolar transistor of Tserng by using it in a power amplifier and/or cell phone to enable those devices to operate to increase the operating frequency.

In re claims 13 and 14, Tserng does not specifically disclose the specific length or width of the extensions or the distance between the base and emitter regions. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the length or width of the fishbone extensions or the distance between the base and emitter regions of the desired parameters, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In re claims 15 and 16, Tserng shows (fig. 11) that the fishbone configuration includes at least six extensions connected to the spine.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-16 have been considered but are not persuasive. The applicant primarily argues that the cited prior art references do not show an inner periphery of an emitter region is adjacent to a periphery of said fishbone configuration, and an outer periphery of the emitter region occupies a perimeter of a base mesa region. The examiner believes that the cited references show all of the elements of the claims. As stated in the rejection above, Tseng shows (figs. 11 or 14)

that the base contact is layer (122) and base fingers (124) extend from the base contact. The emitter region is (128) while the inner periphery is considered to be the portions between the emitter fingers. In essence, Tseng only lacks teachings of a base mesa region. It is presumed that if a mesa were to be formed on the substrate it would be under any parts of the base contacts (120 or 122). However, since Tseng does not provide any teachings of a base mesa, Chau was cited to cure the deficiencies of Tseng in this respect only (limitations pertaining to a base mesa). Therefore, the cited references show all of the elements of the claims and this action is made final.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **MATTHEW E. WARREN** whose telephone number is

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(571)272-1737. The examiner can normally be reached on Mon-Thur and alternating Fri 9:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew E Warren/  
Primary Examiner, Art Unit 2815